Shoalhaven Astronomers Inc.
www.shoalhavenastronomers.asn.au

Volume 23
Issue 5

# Astro Flyer

## MAY 2023

## Club News

From The President

The Observatory build sessions on a Sunday morning have been well attended (when the weather has been kind!) and the fitout of the observatory is progressing. Our next build session will be the 21st May 23 – skipping Mother's day – so if you can help with any of the tasks on the task list that is sent out each week then please come along and lend a hand.

A big thank you to all who have participated in the build sessions so far – it looks great!

Recent developments in some of my other activities necessitate my taking a step or two back from astronomy related matters. I will remain a member of the association and will attend meetings when possible however the management activities I currently undertake need to be curtailed.

The immediate consequence of this is that I have resigned as President – John Gould, our vice president will manage association business until the new executive is elected at the upcoming AGM. I will continue to manage the observatory project to completion and continue to serve on the committee.

So again, a reminder that our AGM will be held in the June/July timeframe where we will be electing a new executive and committee for the following year. Please consider how you can contribute by taking on one of the executive positions or serving on the committee. None of the positions carry a high workload and all can be very rewarding. Give it a go!

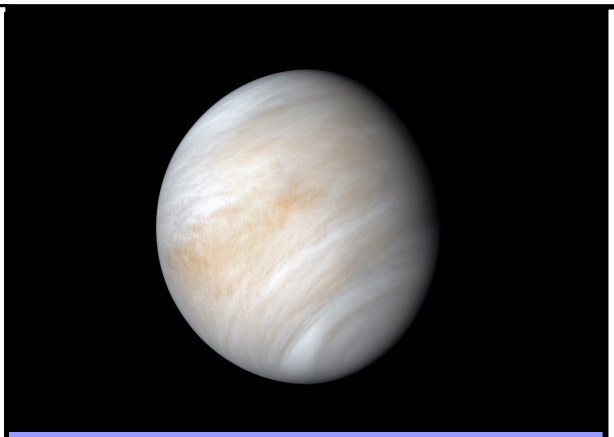
In the meantime – keep on watching!
Best Regards, Mark Town

**Next Meeting May 19 7 for 7.30pm**

## Contents



Bob and Harry are unwell this month.



**MOON PHASES**

| New Moon | First Quarter | Full Moon | Last Quarter |
|---|---|---|---|
| May 20th | May 28th | June 4th | June 11th |

## Viewing Nights

We are aiming, once daylight saving is over, to make observing at Friday meetings a priority if the weather permits.

New and Last Quarter moon phases are good times for Dark Sky Observing.

# Observation Report Andrew Wood

## Moon Phases

| | |
|---|---|
| May 20 | New Moon |
| May 28 | First Quarter |
| June 4 | Full Moon |
| June 11 | Lat Quarter |

## Planets

**Mercury** is an early morning object in the east, being at its greatest elongation from the Sun on May 29 before being lost in the Sun's glare during June.

**Venus** shining bright in the western sky at magnitude -4 as the sun sets, setting after 8pm. Telescopically, its phase is waning from about 50% illuminated toward a crescent as its apparent diameter increases

**Mars** at only 4-5 arcseconds diameter and magnitude 1.5, still visible in the north-western sky after sunset, setting between 9 and 10pm. Its greatest interest telescopically or with binoculars is that it will be passing close to then across the line of sight of M44, the Beehive Cluster in Cancer, during late May and early June.

**Jupiter** at magnitude -2.1 and a diameter around 35 arcseconds in diameter and rising about 4am at the beginning of June, it will be bright in the eastern pre-dawn sky.

**Saturn** Rising around mid-night, at magnitude 1 and a diameter of 17 arcseconds.

## Comets

For anyone who likes hunting down and observing and/or imaging faint comets, there are a stack of them around including a half-dozen in the south. A good online resource is the Heavens Above site: https://www.heavens-above.com/Comets.aspx?lat=0&lng=0&loc=Unspecified&alt=0&tz=UCT

## Constellations

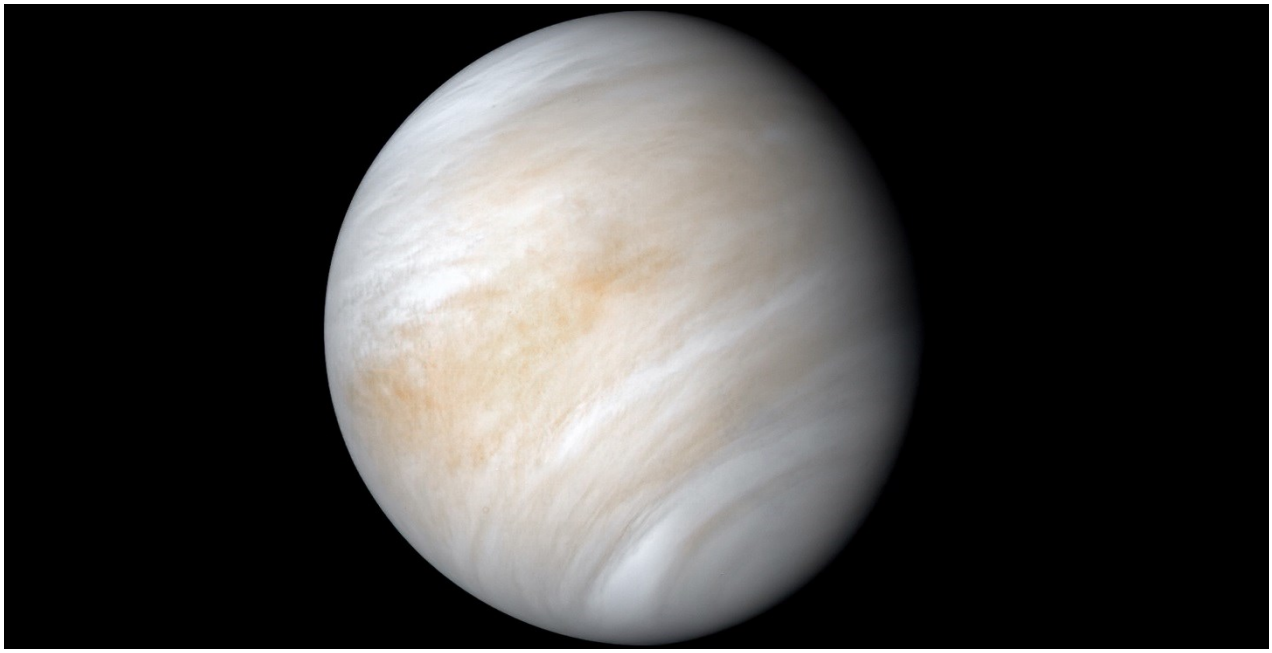
**The Southern Cross** transits around mid-night, meaning a stretch of Milky Way containing a myriad of bright star clusters and nebulae is also visible.

Overhead the prominent 4-star asterism making up the brightest stars of **Corvus** is prominent, with **Virgo's** brightest star Spica below to the east. This means if you have dark skies there is plenty of galaxy hunting to be done. In the centre of the Corvus asterism is the bright planetary nebula NGC 4361.

**Scorpius** is rising in the east early in the evening as we say goodbye to Orion in the west, with Sirius and Canis Major following the Hunter as he sets.

Good Viewing

## Astro Events from Frank Gross



Venus' Superrotation Mystery


Ivan Petricevic
Posted on March 25, 2023

A Global collaboration of Amateur Astronomers has shed light on Venus' superrotation mystery.

A groundbreaking study has closely observed an enormous atmospheric 'tsunami' wave in the clouds of Venus for the first time, revealing its potential role in accelerating the planet's fast-moving atmosphere. This discovery was made possible by an international collaboration of amateur astronomers who observed Venus for over 100 consecutive days.

In a first-of-its-kind study, a team led by Javier Peralta from the University of Seville observed a massive atmospheric wave, resembling a tsunami, that propagates through the deepest clouds of Venus. The findings, published in Astronomy & Astrophysics, suggest this discontinuity may play a significant role in accelerating Venus's rapidly moving atmosphere. The uninterrupted observations, spanning more than 100 days, were made possible by a global network of amateur astronomers working in conjunction with the Japanese mission Akatsuki in 2022.

Discontinuity

The study unveils another surprising fact: ultraviolet images captured by the UVI camera aboard the Akatsuki mission in June showed that the discontinuity appeared to propagate to about 70 km above the surface of Venus for a few hours. "It is surprising because, until now, the discontinuity appeared 'trapped' in the deepest clouds and we had never observed it at such a height," explains Peralta.

As an astrophysicist, Peralta designed the Venus observation strategy for the WISPR instrument during NASA's Parker spacecraft approach and departure maneuvers in 2022, and contributed to the physical interpretation of the observations by comparing thermal emission images from Venus's surface taken by WISPR and Akatsuki's IR1 camera.

## Astro Events from Frank Gross

Cont...2

The Akatsuki images not only suggest the discontinuity may have spread to Venus's upper clouds, but also help researchers understand why this occurred. Generally, regions with winds matching a wave's speed act as a physical barrier to the wave's propagation. On Venus, winds increase gradually with altitude and move faster than the cloud-top discontinuity, preventing the discontinuity from propagating upward from the deep clouds. However, when researchers measured the winds in the high clouds using Akatsuki, they discovered that they were unusually slow in the first half of 2022, several times slower than the discontinuity itself. As a result, the discontinuity could propagate to higher altitudes.

"Measuring the winds on Venus is critical to trying to explain why the Venusian atmosphere spins 60 times faster than the surface. This atmospheric phenomenon is known as superrotation. It also occurs on Saturn's moon Titan and on many exoplanets, but after more than half a century of research, we still cannot explain it satisfactorily," Peralta explained.

# Wide Field Astrophotography by Andrew Wood

## Wide Field Astrophotography with the Hoya Starscape Light Pollution Filter

The easiest form of astrophotography is with a camera on a tripod, opening the shutter for a certain length of time: either short enough to avoid star trailing; or longer if star trails is the effect you are after. This type of astrophotography is good for constellation and milky way shots; and can be used to include landscapes if you want to be creative.

In the suburbs, the camera will also record the light pollution from street and other forms of lighting. Even if you travel some way out of the city, unless you are in a perfectly dark location, the camera will still record horizon light pollution.

I recently purchased a Hoya Starscape Light Pollution Filter. These filters screw onto a lens as other filters do and come in varying diameters. For my camera I purchased the 52mm version. They are neither really cheap nor highly expensive. You will find them advertised at varying places online from $45-$80.
Below are two images of the Southern Cross and Pointers taken from my suburban Wollongong backyard, without (left) and with (right) the filter. The camera is a Panasonic Lumix FZ300. Settings: focal length 25mm, ISO 1600, f2.8 and exposure 8 seconds.

Using the filter with nearby suburban lightning does not suddenly turn your sky into a dark sky paradise. There is a definite reduction in recorded extraneous light, however. These images are jpegs straight from the camera. I haven't taken the raw images and processed them.

An article in the May/June 2023 edition of Australian Sky & Telescope, *The Simplest of Sky Shots,* describes very well how to do this type of astrophotography. I look forward to using these techniques and the filter when I get myself away from the worst of city lighting.

## More Club News

**The AGM was held at the May 2022 monthly meeting. Elected officials for 2022- 2023**
The 2021 AGM has been postponed due to Covid.

**Executive**
President: Mark Town
Vice President: John Gould
Secretary : Andrew Wood
Treasurer: Frank Gross
Public Officer; Frank Gross

**Operation Positions**
Website Manager: Mark Town
Observation Officer: Robert Turnbull
Editor: Kaye Johnston
Librarian: Chris O'Hanlon
Equipment Officer:Vacant

**Committee General Members:**
Freya Bates,
Larry Wakelin,
Chris O'Hanlon,

Check out the Astro Flyer on the web site: www.shoalhavenastronomers.asn.au

| | |
|---|---|
| Shoalhaven<br>Astronomers<br>PO BOX 1053<br>Nowra NSW 2541 | **The deadline for Articles for the Astro Flyer is The First Friday of the Month.**<br><br>**Editor Kaye Johnston** |